

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 04 - 423 - B	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2004/027231	International filing date (<i>day/month/year</i>) 20/08/2004	(Earliest) Priority Date (<i>day/month/year</i>) 23/10/2003
Applicant SIRNA THERAPEUTICS, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 8 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☒ **Unity of invention is lacking** (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the **drawings** to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☒ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2004/027231

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
 - a. type of material
 - ☒ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material
 - ☐ in written format
 - ☒ in computer readable form
 - c. time of filing/furnishing
 - ☐ contained in the international application as filed
 - ☐ filed together with the international application in computer readable form
 - ☒ furnished subsequently to this Authority for the purpose of search
2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

INTERNATIONAL SEARCHREPORT

International Application No
PCT/US2004/027231

A. CLASSIFICATION OF SUBJECT MATTER

C12N15/11 C12P19/34 C07H21/02 C07H21/04 A01N43/04
A61K31/713

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, EMBASE, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 03/006477 A (UNIVERSITY OF MASSACHUSETTS; ZAMORE, PHILLIP, D; HUTVAGNER, GYORGY; MC) 23 January 2003 (2003-01-23) page 33, paragraph 3 -----	1-32, 34
Y	WO 03/072590 A (SIRNA THERAPEUTICS, INC; MCSWIGGEN, JAMES; BEIGELMAN, LEONID; USMAN, N) 4 September 2003 (2003-09-04) page 112, lines 24-29 -----	1-32, 34
Y	WO 02/44321 A (MAX-PLANCK-GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V; TUSCHL,) 6 June 2002 (2002-06-06) page 8, line 11 - page 10, line 32 ----- -/--	1-32, 34



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

17 August 2005

Date of mailing of the international search report

16. 01. 2006

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Barnas, C

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/027231

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 03/070918 A (RIBOZYME PHARMACEUTICALS, INCORPORATED; MCSWIGGEN, JAMES; BEIGELMAN, L) 28 August 2003 (2003-08-28) page 6, line 10 - page 14, line 17 -----	1-32,34
Y	ELBASHIR S M ET AL: "Functional anatomy of siRNAs for mediating efficient RNAi in Drosophila melanogaster embryo lysate" EMBO JOURNAL, OXFORD UNIVERSITY PRESS, SURREY, GB, vol. 20, no. 23, 3 December 2001 (2001-12-03), pages 6877-6888, XP002225998 ISSN: 0261-4189 page 6881, right-hand column, paragraph 2 - page 6882, left-hand column, paragraph 1 page 6884, left-hand column, paragraphs 3,4 page 6885, left-hand column, paragraph 4 - right-hand column, paragraph 1 -----	1-32,34
P,X	WO 2004/056866 A (GENEOS OY; LAITINEN, TARJA; KERE, JUHA; LAITINEN, LAURI, A; POLVI, ANN) 8 July 2004 (2004-07-08) page 24, paragraph 3 - page 25, paragraph 1 page 40, paragraph 3 page 41, paragraph 2 claims 28,112 -----	1-32,34

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/027231

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-32, 34

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-32, 34

A double stranded short interfering nucleic acid (siNA) directing cleavage of a G protein coupled receptor for asthma susceptibility (GPRA) as described in claim 1.

2. claims: 33, 35 (part)

A double stranded short interfering nucleic acid (siNA) directing cleavage of a G protein coupled receptor for asthma susceptibility (GPRA) as described in claim 1 wherein said siNA comprises any of SEQ ID NOs: 1-34, 88-121.

3. claims: 33, 35 (part)

A double stranded short interfering nucleic acid (siNA) directing cleavage of a G protein coupled receptor for asthma susceptibility (GPRA) as described in claim 1 wherein said siNA comprises any of SEQ ID NOs: 35-68, 122-155.

4. claims: 33, 35 (part)

A double stranded short interfering nucleic acid (siNA) directing cleavage of a G protein coupled receptor for asthma susceptibility (GPRA) as described in claim 1 wherein said siNA comprises any of SEQ ID NOs: 69-87, 156-174, 175-202.

5. claims: 33, 35 (part)

A double stranded short interfering nucleic acid (siNA) directing cleavage of a G protein coupled receptor for asthma susceptibility (GPRA) as described in claim 1 wherein said siNA comprises any of SEQ ID NOs: 581-588, 597-692.

6. claims: 33, 35 (part)

A double stranded short interfering nucleic acid (siNA) directing cleavage of an asthma associated alternatively spliced gene 1 (AAA1) wherein said siNA comprises any of SEQ ID NOs: 203-221, 222-240, 241-258, 281-298.

7. claims: 33, 35 (part)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

A double stranded short interfering nucleic acid (siNA) directing cleavage of an asthma associated alternatively spliced gene 1 (AAA1) wherein said siNA comprises any of SEQ ID NOs: 259-280, 299-320, 321-335, 359-373.

8. claims: 33, 35 (part)

A double stranded short interfering nucleic acid (siNA) directing cleavage of an asthma associated alternatively spliced gene 1 (AAA1) wherein said siNA comprises any of SEQ ID NOs: 336-358, 374-396, 397-411, 426-440.

9. claims: 33, 35 (part)

A double stranded short interfering nucleic acid (siNA) directing cleavage of an asthma associated alternatively spliced gene 1 (AAA1) wherein said siNA comprises any of SEQ ID NOs: 412-425, 441-454, 455-477, 497-519.

10. claims: 33, 35 (part)

A double stranded short interfering nucleic acid (siNA) directing cleavage of an asthma associated alternatively spliced gene 1 (AAA1) wherein said siNA comprises any of SEQ ID NOs: 478-496, 520-538, 539-546, 547-554, 555-559, 560-564, 565-572, 573-580.

11. claims: 33, 35 (part)

A double stranded short interfering nucleic acid (siNA) directing cleavage of a asthma associated alternatively spliced gene 1 (AAA1) wherein said siNA comprises any of SEQ ID NOs: 589-596, 693-806.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/027231

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03006477	A	23-01-2003	BR 0211111 A CA 2453183 A1 EP 1412371 A1 JP 2005503140 T	22-06-2004 23-01-2003 28-04-2004 03-02-2005
WO 03072590	A	04-09-2003	NONE	
WO 0244321	A	06-06-2002	AU 3574402 A CA 2429814 A1 ES 2215494 T1 HU 0302557 A2 JP 2004526422 T TR 200401292 T3	11-06-2002 06-06-2002 16-10-2004 28-10-2003 02-09-2004 21-07-2004
WO 03070918	A	28-08-2003	NONE	
WO 2004056866	A	08-07-2004	AU 2003292273 A1 EP 1572739 A1	14-07-2004 14-09-2005